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TI Manufacture of aluminide intake and exhaust valves for internal-combustion engines

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SO Jpn. Kokai Tokkyo Koho, 4 pp.

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LA Japanese

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AB The process comprises mixing (1) 25-75 at.% Ti, Fe or Ni powder with (2) 25-75 at.% Al or AL alloy to form a rod, vertically inserting the rod in a long hole (corresponding to the stem of a valve) of a cooling hearth via its dented top portion (corresponding to the face of a valve) and protruding the upper end of the rod to the outside of the cooling hearth, melting the protruded upper end of the rod and casting the molten material in the dented top portion to form a valve or quasi-valve shape. The Al alloy contains Cr, Mn, V, Co, Zr, Y, Mo, Nb, and Hf 0.05-10 each, Ta, W, Ce, and Nd 0.01-10 each, Si 0.001-10, B, C, and N 0.001-5.0 each, and/or O 0.01-1.0 at.%.